

CLAIMS

1. Circuitry for scheduling data bursts in a optical burst-switched
router, comprising:
an optical switch for routing optical information from an incoming optical
transmission medium to one of a plurality of outgoing optical transmission
media;
a delay buffer coupled to the optical switch for providing n different
delays for delaying information between the incoming transmission medium and
the outgoing transmission media;
scheduling circuitry associated with each outgoing medium, comprising
 $n+1$ associative processors, each associative processor including circuitry for:
storing scheduling information for the associated outgoing optical
transmission medium relative to a respective one of the n delays and for a zero
delay, and
identifying available time periods relative to the respective delays
in which a data burst may be scheduled.
2. The circuitry of claim 1 wherein the incoming optical transmission
medium and the outgoing optical transmission media comprise optical fibers.
3. The circuitry of claim 1 wherein the associative processors identify
unscheduled time periods.
4. The circuitry of claim 1 wherein the associative processors identify
gaps between scheduled data bursts.
5. The circuitry of claim 4 and further comprising a second set of $n+1$
associative processors, wherein the second set of associative processors identify
unscheduled time periods.

6. The circuitry of claim 1 wherein said delay buffer comprises
2 discrete delay lines each coupled a predetermined input and a predetermined
output of said optical switch.

7. The circuitry of claim 1 wherein said delay buffer comprises a
2 matrix of delay lines, where a desired delay line can be coupled between a
selected input and selected output of said optical switch.

8. A method of scheduling data bursts in a optical burst-switched
2 router that routes optical information through an optical switch from an
incoming optical transmission medium to one of a plurality of outgoing optical
4 transmission media either directly through the optical switch or via one of n
different delays of a delay buffer, comprising the steps of;

6 storing scheduling information in $n+1$ associative processors for the
associated outgoing optical transmission medium relative to a respective one of
8 the n delays and for a zero delay, and

10 concurrently identifying available time periods in each of said associative
processors in which a data burst may be scheduled, such that available time
periods associated with multiple delays can be simultaneously determined.

9. The method of claim 1 wherein the incoming optical transmission
2 medium and the outgoing optical transmission media comprise optical fibers.

10. The method of claim 1 wherein said concurrently identifying step
2 comprises the step of concurrently identifying unscheduled time periods in each
of said associative processors.

11. The method of claim 1 wherein said concurrently identifying step
2 comprises the step of concurrently identifying gaps between data bursts in each
of said associative processors.

14. The method of claim 1 wherein said delay buffer comprises a
2 matrix of delay lines, where a desired delay line can be coupled between a
selected input and selected output of said optical switch.

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